

## **1111 MATERIAL PITS**

When the contract specifies that the Contractor will supply his own material source, ADOT personnel will not survey or stake the pit.

ADOT personnel will not furnish the Contractor any survey services, except those services called for in the specifications or in this manual.

Some basic rules should be followed in the staking of ADOT furnished material pits regardless of the basis of payment. First, the right-of-way limits of the pit should be determined and marked. A sketch of the pit area should be made in the pit book and definite survey ties made between test hole locations and roadway stationing or between test hole locations and a section line in case the road is at a remote distance. If the pit is divided into more than one area, or ownership, each area or ownership shall be marked off, measurements should be taken for each area, and each area plotted in the pit book. (See Exhibit 1111-1)

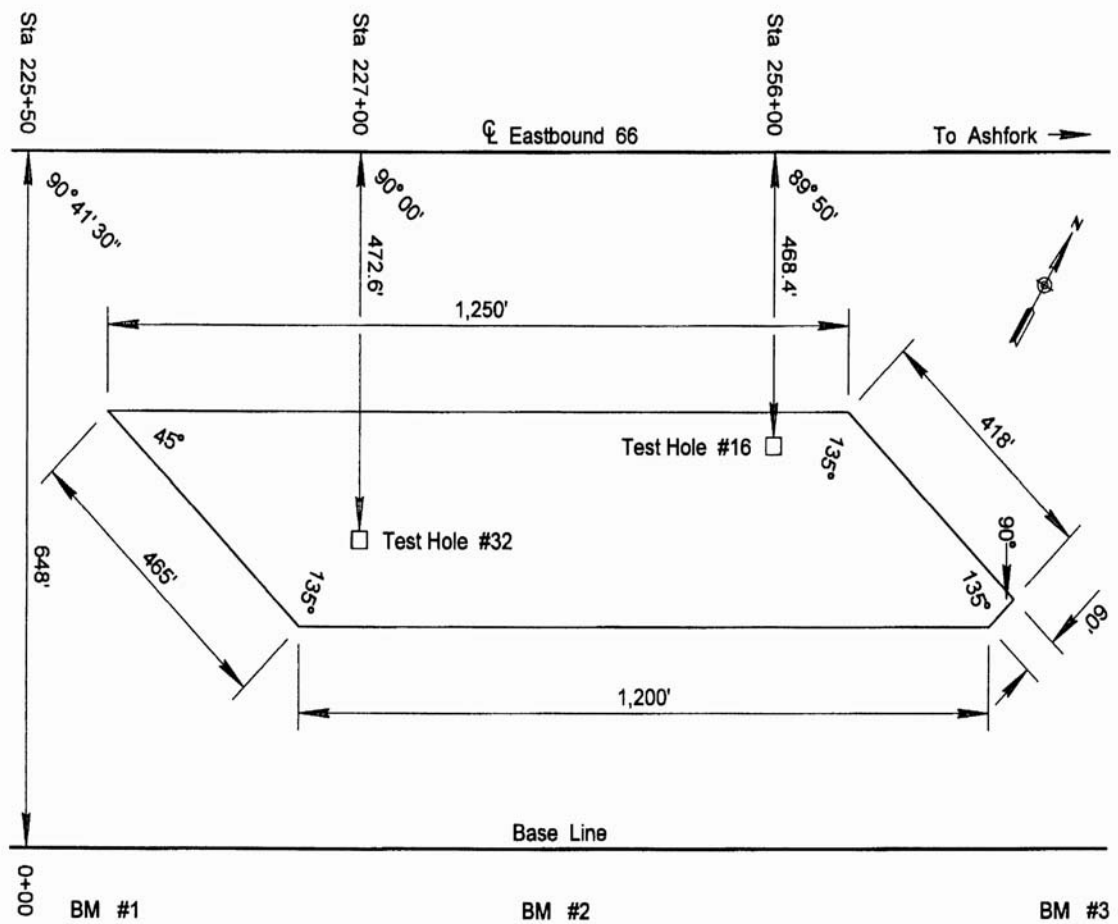
A base line, well outside the working limits of the pit, should be established on 50 foot (15 meter) stationing. Parallel base lines on opposite sides of the pit are recommended in order to keep sections across pit area at right angles to base line. Base lines should be well referenced since equipment working the pit may be expected to operate both inside and outside the pit limits, often disturbing reference stakes located close to the pit area. Distances of 150 feet (45 meters) or more for references should be used.

In most cases the item of stripping pits is paid on a cubic yard basis. In this event, it is necessary to cross section the pit area before and after the stripping operation. The final cross section notes of the stripping item would serve as the original sections for pit measurements.

In staking pits, where the material is to be paid for on a cubic yard (cubic meter) basis, the following procedure should be followed. After the base line has been established and referenced, and assumed elevations or actual elevations have been taken on all hubs along the baseline, the entire pit area is cross sectioned at right angles to the base line and the notes should be recorded in a field book. Level notes should show level turns and closures. Make certain that cross sections are taken so as to cover the entire area where material is to be removed and such area marked on the ground so the Contractor and the Inspector will know which area has been cross sectioned. No material should ever be removed from a pit area on a cubic yard payment basis until cross sections have been taken. Level circuit notes shall be retained with the cross section noted as part of the records of measurement and as a means of perfecting the record in case of a discrepancy or a controversy. After completion of the removal of material from the pit area and smoothing up of the area, final cross sections are taken from the base line, using the same assumed or actual elevations. Volumes are then computed for the original and final sections, using the average end area method, with the difference between the two representing the volume of material actually removed from the pit area.

Where the pit area is subject to flood conditions during the rainy season, the area shall be remeasured at intervals or immediately after depleting each area. Do not wait until the project is completed before remeasuring.

While the staking method recommended herein is acceptable, the method to be used shall be determined by the Engineer. One important fact to remember, however, is to use the same method of measurement on both the original and final sections.



**Pit No. 7020**

**648' Right E.B. Station 225+50**  
 $\angle = 93^\circ 37' 00''$

**Pit BM's on Baseline**

**Elevation**

|    |       |         |
|----|-------|---------|
| BM | No. 1 | 3432.09 |
| BM | No. 2 | 3425.50 |
| BM | No. 3 | 3419.43 |

Exhibit 1111-1. Material Pit Diagram